

IS THERE A RACIAL OR GENDER DISPARITY IN PREVALENCE AND LENGTH OF BIFID RECURRENT LARYNGEAL NERVE?

Fontenot, Tatyana¹, Masoodi, Hammad², Musa Yola, Ibrahim³; Kandil, Emad⁴.

¹Tulane University School of Medicine, Department of Otolaryngology, New Orleans, USA; ²Tulane University School of Medicine, Department of Surgery, New Orleans, USA; ³Tulane University School of Public Health and Tropical Medicine, New Orleans, USA; ⁴Tulane University School of Medicine, Department of Surgery, Department of Otolaryngology, Department of Endocrine Surgery, New Orleans, USA.

Background/Purpose: Recurrent Laryngeal Nerves' (RLN) extralaryngeal bifurcation conveys an increased risk of nerve injury during thyroid surgery. Similar to other anatomical variations, we postulated racial and gender disparities in RLN extralaryngeal branching. To test this hypothesis we compared relevant intraoperative data in patients who underwent thyroid and central compartment surgery.

Methods: A retrospective review of prospectively collected database identified all patients who underwent thyroid or central compartment surgery with intraoperative nerve monitoring (IONM) within four years by a single surgeon in an academic institution. Intraoperative details of nerve dissection and integrity monitoring were recorded.

Results: We included 622 RLNs at risk in 421 patients. 192 patients (45.4%) were African American (AA) and 345 were female (81.9%). Overall, 241 RLN (38.7%) had an extralaryngeal bifurcation at 10.19 ± 0.53 mm from cricothyroid membrane (CTM). Motor fibers were present in 100% of the anterior and two of the posterior extralaryngeal RLN branches (0.83%).

In AA, 121(41.9%) of 289 nerves at risk were bifurcated. In 213 Caucasians, 114(36.4%) of the 313 RLNs bifurcated. AAs' RLNs bifurcated at the average distance of 9.4 ± 0.50 mm from CTM compared to 11.4 ± 0.94 mm in Caucasians ($p < 0.05$).

In males, 50(42.7%) of 117 RLNs were bifurcated. Of the 504 RLNs in female patients, 190 RLN (37.7%, $p = 0.31$) bifurcated. RLNs in females bifurcated at longer distance, 10.50 ± 0.58 mm from CTM compared to 8.51 ± 0.78 mm in males ($p < 0.05$).

Discussion & Conclusion: AAs have a higher rate of extralaryngeal RLN branching. However, Caucasians and women demonstrated longer bifid RLNs. These highly significant findings warrant further future investigation.